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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,161	09/11/2003	Christopher S. Welch	LAR 16091-1	1537
23351	7590	05/20/2004		
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION LANGLEY RESEARCH CENTER 3 LANGLEY BOULEVARD MAIL STOP 212 HAMPTON, VA 236812199			EXAMINER	STEVENSON, ANDRE C
			ART UNIT	PAPER NUMBER
			2812	

DATE MAILED: 05/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.	10/662,161	Applicant(s)	WELCH ET AL.
Examiner	Andre' C. Stevenson	Art Unit	2812

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

### Status

1) Responsive to communication(s) filed on 27 February 2004.

2a) This action is FINAL.      2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

4) Claim(s) 1-53 is/are pending in the application.

4a) Of the above claim(s) 23-40 is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-5,7-9,12,14,15,17-19,21,22,41,43-45,48 and 50-53 is/are rejected.

7) Claim(s) 6,10,11,13,16,20,42,46,47 and 49 is/are objected to.

8) Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved.

12) The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. § 119

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) All b) Some \* c) None of the CERTIFIED copies of the priority documents have been:

1. received.

2. received in Application No. (Series Code / Serial Number) \_\_\_\_\_.

3. received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

### Attachment(s)

15) Notice of References Cited (PTO-892)

16) Notice of Draftsperson's Patent Drawing Review (PTO-948)

17) Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_

18) Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_

19) Notice of Informal Patent Application (PTO-152)

20) Other: \_\_\_\_\_

## Detail Action

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being unpatentable over Yost et al (U.S. Pat. No.5393980).

Yost et al (U.S. Pat. No.5393980), for **Claim #1**, an apparatus for performing quality inspections on a test surface comprising: a device for producing optical radiation having a plurality of different spectrum lines, selecting at least one of the spectrum lines, and directing the selected spectrum line to the test surface; and circuitry for detecting a current of photoelectrons emitted from the test surface, generating a signal indicative of photoelectron current, and indicating a condition of quality based on the generated signal indicative of photoelectron current, (Abstract, Column 3, lines 40 through 67, Column 4, lines 1 through 12).

With respect to **Claim #2**, an apparatus according to claim 1 wherein the device comprises an ultraviolet optical radiation source, is taught by Yost et al (U.S. Pat. No.5393980) (Column 3, lines 40 through 67).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim\*\*\* rejected under 35 U.S.C. 103(a) as being unpatentable over Yost et al (U.S. Pat. No.5393980), as applied to claims 1 and 2 above, and further in view of Hill (U.S. Pat. No.6480285 B1).

Yost et al (U.S. Pat. No.5393980)discloses the claimed invention except for the wherein the ultraviolet optical radiation source comprises an ultraviolet laser. Hill (U.S. Pat. No.6480285 B1) teaches that it is known to have the ultraviolet optical radiation source comprising of an ultraviolet laser.

Furthermore, **Claim #3**, an apparatus according to claim 2 wherein the ultraviolet optical radiation source comprises an ultraviolet laser, is taught by Hill (U.S. Pat. No.6480285 B1) (Column 4, lines 57 through 67, Column 5 line 1 through 13).

It would have been obvious to one having ordinary skill in the art at the time the invention was made wherein the ultraviolet optical radiation source comprises an ultraviolet laser as taught by Hill (U.S. Pat. No.6480285 B1), since Hill (U.S. Pat. No.6480285 B1) states at Column 4, lines 57 through 67 that such a modification would utilize dyes that are excited in the ultraviolet range.

Considering now, **Claim #4**, an apparatus according to claim 3 wherein the laser comprises a tunable laser, is taught by Hill (U.S. Pat. No.6480285 B1) (Column 4, lines 57 through 67, Column 5 line 1 through 13):

With respect to **Claim #5**, an apparatus according to claim 2 wherein the ultraviolet optical radiation source comprises an excimer lamp , is taught by Hill (U.S. Pat. No.6480285 B1) (Column 6, lines 59 through 67, Column 7, lines 1 through 10).

Furthermore, **Claim #7**, an apparatus according to claim 1 wherein the selecting device comprises: a filtering device that filters the optical radiation directed to the test

surface, is taught by Yost et al (U.S. Pat. No.5393980) (Column 7, lines 66 through 68, Column 8 line 1 through 24).

Considering now, **Claim #8**, an apparatus according to claim 7 wherein the filtering device comprises a plurality of filtering sections, each filtering section allowing at least one particular spectrum line to pass therethrough, is taught by Yost et al (U.S. Pat. No.5393980) (Column 7, lines 66 through 68, Column 8 line 1-through 24).

With respect to **Claim #9**, the apparatus according to claim 8 wherein a first one of the plurality of filtering sections allows only a first spectrum line to pass therethrough, a second one of the filtering sections allows only a second spectrum line to pass therethrough, and a third one of the plurality of filtering sections allows only the first and second spectrum lines to pass therethrough, is taught by Yost et al (U.S. Pat. No.5393980) (Column 7, lines 66 through 68, Column 8 line 1 through 24).

Furthermore, **Claim #12**, the apparatus according to claim 8 wherein each of the filtering sections comprises diffraction gratings, is taught by Hill (U.S. Pat. No.6480285 B1) (Column 43, lines 50 through 67, Column 44 line 1 through 10).

Considering now, **Claim #14**, a apparatus according to claim 1 wherein the detecting circuitry includes a collector for collecting the photoelectron current and

means for positively biasing the collector with respect to the test surface, is taught by Yost et al (U.S. Pat. No.5393980) (Abstract).

With respect to **Claim #15**, the apparatus according to claim 14 further comprising means for negatively biasing the collector with respect to the test surface to replace charges removed as photoelectron current from the test surface by the previously positively biased collector, is taught by Yost et al (U.S. Pat. No.5393980) (Abstract).

Furthermore, **Claim #17**, an apparatus for performing quality inspections on a test surface comprising means for producing optical radiation having a plurality of different spectrum lines, selecting at least one of the spectrum lines and directing a current of photoelectrons emitted from the test surface generating a signal indicative of photoelectrons, and indicating a condition of quality based on the generated signal indicative of photoelectron current, is taught by Yost et al (U.S. Pat. No.5393980) (Abstract, Column 3, lines 40 through 67, Column 4, lines 1 through 12).

Considering now, **Claim #18**, an apparatus according to claim 17 wherein the means for indicating a condition of quality based on the generated signal indicative of photoelectron current comprises means for discerning at least one of; surface contamination; surface corrosion; and different species of contamination, is taught by Yost et al (U.S. Pat. No.5393980), (Column 1, lines 17 through 21).

With respect to **Claim #19**, an apparatus for performing quality inspections on a test surface based on optically stimulated emission of electrons comprising an optical radiation source for producing optical radiation having a plurality of different spectrum lines; a selection device for selecting at least one of the spectrum lines and directing the selected spectrum line to the test surface; circuitry for detecting a current of photoelectrons emitted from the test surface and generating a signal indicative of the detected photoelectron current; and circuitry for indicating a condition of quality based on the generated signal indicative of photoelectron current, is taught by Yost et al (U.S. Pat. No.5393980) (Abstract, Column 3, lines 40 through 67, Column 4, lines 1 through 12).

Furthermore, **Claim #21**, an apparatus for performing quality inspections on a test surface comprising: a multi-state device for producing optical radiation in the direction of the test surface, the optical radiation defining a particular spectrum line that corresponds to a particular state of the device wherein each state of the device effects generation of at least one particular spectrum line; circuitry for successively configuring the device into different states; and additional circuitry for detecting a current of photoelectrons emitted from the test surface, generating a signal indicative of photoelectron current and indicating a condition of quality based on the generated signal indicative of photoelectron current, is taught by Yost et al (U.S. Pat. No.5393980) (Abstract, Column 3, lines 40 through 67, Column 4, lines 1 through 12).

With respect to **Claim #22**, an apparatus according to claim 21 wherein the additional circuitry detects a current of photoelectrons emitted from the test surface for each state of the multi-state device, the additional circuitry including circuitry for combining the detected current of photoelectrons emitted from the test surface for each state of the multi-gate device into a single detection signal the additional circuitry being configured so that the indicated condition of quality is based upon the single detection signal, is taught by Yost et al (U.S. Pat. No.5393980) (Column 12, lines 61 through 67, Column 13, lines 1 through 21).

Considering now, **Claim #41**, an apparatus for performing quality inspections on a test surface comprising: means for producing optical radiation having a continuum spectrum selecting a band of at least one wavelength from the continuum, and directing the selected band to the test surface; and means for detecting a current of photoelectrons emitted from the test surface, generating a signal indicative of photoelectron current, and indicating a condition of quality based on the generated signal indicative of photoelectron current, is taught by Yost et al (U.S. Pat. No.5393980) (Abstract, Column 3, lines 40 through 67; Column 4, lines 1 through 12):

With respect to **Claim #43**, an apparatus according to claim 41 wherein the selecting means comprises a filtering device that filters the optical radiation directed to

the test surface, is taught by Yost et al (U.S. Pat. No.5393980) (Column 7, lines 66 through 68, Column 8, lines 1 through 24).

Furthermore, **Claim #44**, an apparatus according to claim 43 wherein the filtering device comprises a plurality of filtering sections, each filtering section allowing at least one particular spectrum band to pass therethrough, is taught by Yost et al (U.S. Pat. No.5393980) (Column 7, lines 66 through 68, Column 8, lines 1 through 24).

Considering now, **Claim #45**, the Apparatus according to claim 44 wherein a first one of the plurality of filtering sections allows only a first spectrum band to pass therethrough a second one of the filtering sections allows only a second spectrum band to pass therethrough, and a third one of the plurality of filtering sections allows only the first and second spectrum bands to pass therethrough, is taught by Yost et al (U.S. Pat. No.5393980) (Column 7, lines 66 through 68, Column 8, lines 1 through 24).

With respect to **Claim #48**, an apparatus according to claim 44 wherein each of the filtering sections comprises diffraction gratings, is taught by Hill (U.S. Pat. No.6480285 B1) (Column 43, lines 55 through 67, Column 44, lines 1 through 10).

Furthermore, **Claim #50**, an apparatus according to claim 41 wherein the detecting means includes a collector for collecting the photoelectron current and means

for positively biasing the collector with respect to the test surface, is taught by Yost et al (U.S. Pat. No.5393980) (Abstract, Column 3, lines 40 through 67; Column 4, lines 1 through 12).

Considering now, **Claim #51**, the apparatus according to claim 50 further comprising means for negatively biasing the collector with respect to the test surface to replace charges removed as photoelectron current from the test surface by the previously positively biased collector, is taught by Yost et al (U.S. Pat. No.5393980) (Abstract, Column 3, lines 40 through 67, Column 4, lines 1 through 12).

With respect to **Claim #52**, the apparatus according to claim 41 wherein the means for indicating a condition of quality based on the generated signal indicative of photoelectron current comprises means for evaluating the generated signal to thus discern at least one of: surface contamination; surface oxidation; and different species of contamination, is taught by Yost et al (U.S. Pat. No.5393980) (Column 1, lines 17 through 21).

Furthermore, **Claim #53**, the apparatus according to claim 48 wherein each of the diffraction gratings comprises a slit thereby permitting the at least one particular spectrum band to pass therethrough, is taught by Yost et al (U.S. Pat. No.5393980) (Abstract, Column 3, lines 40 through 67, Column 4, lines 1 through 12).

## Objected Claims

Claims 6, 10, 11, 13, 16, 20, 42, 46, 47 and 49 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### Claim #6

- ✓ Microhollow Cathode Discharge lamps

### Claim #10

- ✓ Third state that enables only the third filtering section to filter the optical radiation.

### Claim #13

- ✓ Dielectric filter.

### Claim #16

- ✓ Different species of contaminants

### Claim #20

- ✓ Different species of contaminants

### Claim #42

- ✓ Optical radiation comprises deuterium lamp.

### Claim #46

- ✓ Third state that enables only the third filtering section to filter the optical radiation.

Claim #49

- ✓ Dielectric Filter.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andre' Stevenson whose telephone number is (571) 272 1683. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Niebling, can be reached on (571) 272 1679. The fax phone number for the organization where this application or proceeding is assigned is (703) 308 7724.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 0956. Also, the proceeding numbers can be used to fax information through the Right Fax system;

(703) 872-9306

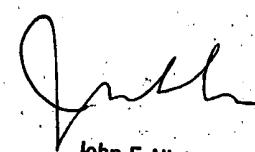
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Andre' Stevenson

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John F. Niebling  
Supervisory Patent Examiner  
Technology Center 2800